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ABSTRACT

The 199 microcomputer-related ERIC documents listed in this resource guide were reviewed and assigned identifiers from 41 variables (descriptors) in five categories: curriculum (content), educational uses, educational level, hardware/software, and miscellaneous. Variables were assigned on the basis of whether the user interested in this variable would, in all probability, want to look at a given document. The main document listing, which is by ED number, includes bibliographic information and a brief annotation. The number assigned to each document in this section is listed with each of the 41 variables for which it was designated, providing a subject index that enables the user interested in several variables to locate materials quickly by completing a set intersection of the documents listed with each of the desired variables, e.g., library, software packages, and secondary. The documents included were entered in the ERIC database between November 1976 and December 1982. (Author/LMM)

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ED237080

Microcomputers in Educational Settings: A Categorization of ERIC ED Documents Through December 1982

Abstract

One hundred ninety-nine documents cataloqued through December, 1982 under ED numbers were reviewed and identifiers assiqned on 41 variables in five categories: Curriculum (content), Educational Uses, Educational Level, Hardware/Software, and Miscellaneous. The variables were assiqned on the basis of whether the user interested in this variable would, in all probability, want to look at a given document. Each document is listed with each of the 41 variables for which it was desiqnated. Users interested in three variables such as (1) Library, (2) Software packaqes, and (3) Secondary can quickly complete a set intersection of the documents listed with these three variables.

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Introduction

The rapid evolution of microcomputer hardware and software has led to the creation of microcomputerized coursework at nearly every instructional level, elementary through graduate. At the same time many important questions are being generated such as

(1) What is being done with microcomputers in (math) (humanities) (business education) (natural sciences)?

(2) What is known about the uses of microcomputers for (management) (tutorial) (drill and practice) (simulation)?

(3) What are the uses of microcomputers in (preschool) (elementary) (middle level) (teacher education)?

(4) Where can I get more information about (software or courseware packages) (hardware) (some specific programs)?

(5) Where can I go if I want information about (a specific language) (experimental research) (a literature review) (conferences and projects)?

Since these questions arise routinely, the reviewers decided to review all microcomputer documents (identified through a search of document annotations) and to catalog them according to several important educational variables. The product of such a task was felt to be of great potential value

to public and private elementary and secondary school teachers, graduate students, and college/university faculty.

The Process and the Products

Two graduate students and a faculty member recognized the value of such documentation. They began by all reviewing the same five articles. When each person read a document, s/he recorded relevant identifiers. Over a period of five weeks, several lengthy discussions were held, identifier usage began to solidify, and a variable list evolved and was categorized. For the next four weeks, each person reviewed eight documents each week and reported the assigned identifiers. Over time, there were fewer and fewer changes at the reporting sessions; the incidence of change became rare. At this point the reviewers decided that further discussion was not warranted.

A standardized format sheet was developed. Each reviewer assigned one or more identifiers and wrote a one to three sentence summary. The report in this document contains listings by 41 categories of all documents which fit the listing. A very small number of documents were omitted because they were irrelevant to the listing of variables. One, for example, was a one page listing of winners of a microcomputer contest.

List of Descriptors

Curriculum

1. Math/Computer Science
2. Natural Sciences*
3. Social Sciences*
4. Special Education*
5. Humanities*
6. Multicultural Education*
7. Business
8. Misc. (none of the above)

Educational Uses

9. Drill and practice
10. Simulation
11. Tutorial
12. Testing
13. Management

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* Natural Sciences: chemistry, physics, biology, earth science, physical geography

* Social Sciences: history, government, anthropology, psychology, sociology, archeology, political sciences, cultural geography

* Humanities: music, art, literature, foreign language

* Special Education: LD, gifted, physically handicapped, EMR, etc.

* Multicultural education: sexism, ageism, ethnicity, cultural pluralism, minorities, etc.

14. Administration (non-instructional)
15. Problem solving/logic
16. Games
17. Library
18. Programming (teaching off)
19. Career Education
20. Awareness (history, uses)
21. Generic CAI

Software/hardware

22. Software packages (products which exist)
23. Coursework packages (which exist)
24. Hardware
25. Software development (process)
26. Computer Program listed

Miscellaneous

27. Computer Language
28. Graphics
29. Research (experimental)
30. Conference/project report
31. Implementation/scheduling issues
32. Future/trends
33. Literature review

Educational Level

34. Preschool

35. Elementary

36. Middle

37. Secondary

38. Teacher Education (prof. courses/in-service)

39. University (non-teacher ed)

40. Adult ed/junior and community college

41. Broad applicability

Curriculum

1. Math/CSC	1, 8, 17, 18, 19, 21, 26, 28, 31, 32, 38, 39, 45, 49, 53, 54, 60, 61, 67, 72, 77, 78, 88, 90, 95, 96, 97, 98, 105, 107, 108, 115, 124, 131, 132, 133, 134, 135, 137, 138, 140, 159, 161, 164, 167, 172, 180, 194
2. Natural Sciences	1, 5, 19, 28, 31, 32, 38, 45, 49, 50, 54, 60, 70, 72, 77, 80, 83, 88, 90, 108, 110, 114, 118, 134, 161, 169, 171, 180, 190, 199
3. Social Sciences	1, 4, 13, 28, 31, 38, 50, 54, 60, 77, 88, 90, 108, 122, 130, 149, 169
4. Special Education	1, 28, 30, 31, 39, 45, 54, 60, 63, 64, 77, 112, 121, 127, 139, 140, 149, 156, 158, 160, 174

5. Humanities	3, 7, 8, 22, 28, 31, 32, 38, 45, 54, 60, 77, 88, 89, 90, 93, 101, 122, 153, 154, 155, 164, 165, 191
6. Multicultural Education	1, 28, 31, 32, 51, 60, 161, 164
7. Business	1, 28, 32, 38, 48, 56, 57, 58, 60, 90, 94, 107, 117, 125, 162
8. Misc.	6, 14, 19, 23, 25, 26, 28, 31, 55, 61, 65, 108, 116, 126, 148

Educational Uses

9. Drill and practice	1, 18, 30, 31, 39, 54, 58, 93, 137, 161, 177, 180
10. Simulation	1, 6, 21, 30, 31, 58, 90, 108, 137, 153, 170, 177, 180, 199
11. Tutorial	1, 6, 18, 30, 31, 32, 33, 48, 49, 53, 60, 61, 65, 90, 137, 161, 177, 180
12. Testing	1, 2, 4, 28, 31, 32, 37, 54, 60, 70, 90, 106, 180
13. CMI (Management)	1, 2, 28, 30, 31, 32, 37, 42, 43, 44, 45, 54, 58, 60, 69, 77, 79, 80, 90, 122, 137, 169, 174, 180, 184, 188, 190, 192, 198

14. Administration	1, 15, 20, 28, 31, 35, 41, 43,
(non-instrutional)	44, 45, 54, 56, 58, 60, 68, 69, 77, 81, 90, 123, 125, 128, 144, 152, 156, 174, 175, 176, 179, 184, 185, 186, 187, 188, 192
15. Problem solving/logic	1, 6, 19, 26, 31, 32, 50, 53, 54, 58, 60, 75, 161, 169, 177, 194, 199
16. Games	32, 58, 60, 108, 161
17. Library	9, 31, 47, 54, 62, 92, 150, 177
18. Programming	1, 16, 17, 28, 31, 32, 48, 54, 57, 60, 72, 75, 77, 90, 98, 132, 146, 148, 153, 167, 172, 177, 180, 192

19. Career Education	38, 54, 58, 60, 66, 72, 77, 80, 162
20. Awareness (history/uses)	1, 5, 11, 14, 24, 27, 28, 29, 31, 32, 33, 35, 37, 46, 52, 54, 55, 56, 57, 58, 64, 67, 69, 72, 73, 74, 76, 79, 80, 82, 85, 87, 88, 90, 96, 97, 98, 102, 103, 104, 107, 108, 110, 112, 113, 120, 122, 124, 132, 135, 138, 139, 141, 145, 148, 150, 151, 153, 155, 163, 167, 193
21. Generic CAI	1, 4, 13, 16, 23, 28, 29, 30, 31, 32, 33, 36, 37, 38, 39, 40, 42, 45, 46, 47, 51, 52, 58, 59, 63, 64, 67, 69, 72, 73, 74, 76, 77, 78, 79, 80, 88, 90, 91, 108, 112, 122, 131, 132, 133, 134, 135, 136, 138, 140, 145, 148, 151, 152, 153, 154, 155, 157, 159, 160, 163, 164, 165, 166, 171, 172,

174, 177, 178, 181, 182, 184,
186, 188, 192, 193, 195, 196

Software/Hardware

22. Software Packages — 1, 7, 15, 16, 37, 38, 39, 43, 44, 45, 53, 54, 60, 73, 80, 90, 99, 104, 142, 143, 154, 175, 178, 199

23. Courseware Packages — 31, 37, 38, 39, 45, 54, 60, 90, 99

24. Hardware — 1, 10, 12, 14, 22, 25, 26, 28, 30, 31, 32, 37, 39, 40, 41, 43, 44, 45, 57, 60, 72, 73, 74, 80, 82, 90, 9[illegible], 100, 104, 108, 119, 121, 169, 170, 172, 177, 179, 182, 183

25. Software Development — 22, 28, 31, 32, 43, 44, 45, 49, 57, 60, 83, 129, 154, 168, 169, 175, 179

26. Computer Program Listed — 1, 15, 17, 21, 30, 31, 32, 33, 47, 50, 54, 72, 112, 135, 164, 167, 172, 179, 190

Miscellaneous

27. Computer Language	12, 17, 30, 31, 32, 39, 60, 80, 90, 108, 164, 167
28. Graphics	7, 8, 16, 26, 30, 31, 45, 53, 54, 58, 60, 90, 93, 171
29. Research (empirical)	4, 10, 18, 31, 32, 33, 37, 50, 52, 54, 58, 60, 61, 71, 75, 76, 84, 86, 89, 94, 128, 131, 134, 136, 144, 146, 169, 191
30. Conf/Project Report	1, 24, 28, 29, 31, 32, 49, 52, 53, 54, 55, 60, 68, 77, 80, 102, 113, 116, 120, 124, 134, 135, 146, 151, 157, 158, 161, 165, 168, 173, 174, 176, 179, 184, 185, 186, 192, 193, 196, 197

31. Implementation/ Scheduling Issues	1, 13, 14, 31, 32, 52, 54, 68, 72, 80, 85, 88, 90, 111, 148, 152, 164, 166, 170, 177, 180, 192, 193
32. Future/Trends	13, 18, 24, 27, 28, 29, 30, 31, 32, 45, 46, 51, 54, 56, 57, 58, 59, 62, 66, 69, 71, 72, 79, 81, 82, 87, 90, 100, 102, 107, 108, 112, 120, 122, 141, 147, 148, 155, 163, 173, 182, 183, 184, 189
33. Literature Review	4, 21, 28, 30, 31, 33, 34, 36, 45, 50, 52, 67, 107, 109, 113, 124, 144, 159, 166, 178, 183

Educational Level

34. Preschool — 38, 61, 112, 142

35. Elementary — 38, 39, 45, 58, 59, 63, 65, 71, 75, 84, 96, 97, 99, 112, 113, 115, 132, 134, 136, 142, 144, 146, 161, 176, 178, 180, 189, 193

36. Middle — 38, 45, 47, 50, 63, 65, 69, 71, 84, 86, 96, 97, 99, 101, 112, 113, 132, 134, 136, 142, 144, 146, 154, 167, 172, 178, 180, 184, 189, 191, 193

37. Secondary — 13, 38, 39, 45, 47, 48, 49, 53, 58, 65, 67, 69, 71, 72, 84, 96, 97, 99, 105, 112, 113, 116, 117, 131, 134, 136, 142, 144, 154, 155, 162, 163, 167, 170, 176, 178, 180, 184, 186, 189, 193, 199

38. Teacher Education (prof-courses, in-service)	10, 17, 21, 23, 29, 37, 58, 69, 72, 80, 93, 99, 103, 155, 181, 192, 194
39. University (non-teacher ed)	6, 13, 14, 17, 18, 21, 24, 25, 26, 48, 49, 53, 58, 69, 70, 80, 83, 87, 88, 91, 92, 95, 122, 123, 125, 126, 130, 141, 162, 169, 170, 171, 177, 178, 181, 198
40. Adult Ed/Junior and Community College	13, 14, 19, 37, 38, 41, 44, 49, 53, 55, 58, 60, 69, 72, 78, 80, 83, 114, 116, 118, 119, 141, 153, 171, 175, 198
41. Wide Applicability	1, 2, 3, 15, 16, 22, 28, 30, 31, 32, 33, 46, 51, 52, 54, 62, 64, 66, 73, 74, 76, 77, 79, 85, 90, 98, 104, 106, 107, 110, 121, 124, 127, 128, 133, 135, 137, 138, 143, 145, 148, 151, 153, 160, 165, 166, 173, 179, 186, 188

ED DOCUMENTS

1. ED 125 663 Higher Education and Final Papers presented at AEDS. Association for Educational Data Systems, May 1976. 46pp.

   Contains 8 papers on microcomputers in higher education. Much of the content is applicable to other educational levels as well. Evaluation of Computer impact. Administrative and instructional uses. Chemistry. Hardware purchase procedures. Time sharing. Business courses. Physics. Biology. H. S. Gifted. Computer networks. Teaching computer programming. How to publish programs.

2. ED 135 388 Microcomputer Controlled, Interactive Testing Terminal Development. Kirby, P., Gardner E. Oct 1976. 27 pp.

   The article describes the development for a self contained test scoring terminal (developed by the United States Air Force). Both software and hardware are discussed, as well as the programming language used, Pascal.

3. ED 160 068 MC Painting -- A New Medium for Art Education. Hicks, B., Zibit, M. Mar 1978. 11 pp.

   The article describes the MC (microcomputer) Paintbrush and how it can be used to "paint" pictures on a color TV screen. The system includes an IMSAI 8080 microcomputer, and iCOM dual disk drive, the Crememco Dazzler interface, and the Cromemco joystick.

4. ED 160 076 Factors in Time -- Variable Learning Allowed by Computer Delivered Interactive Testing. Evans, R., Surkan, A. Sep 1977. 19 pp.

This study examined the relationships between final course grades (in an undergraduate educational psychology course) and "time to criterion over five course examination." The study "found time allowed for learning an important source of variation in mastering learning teaching strategy while academic aptitude was relatively unimportant. A lengthy reference section is included.

5. ED 164 010 Personal Computers for Science in the 1980s. Gammill, R. Feb 1978. 27 pp.

The author describes, in general terms, some aspects of personal computers. The remainder of the article discusses how personal computers could be used in scientific research, and how technology has made this possible, especially in rural areas. A reference section is included.

6. ED 168 902 A Microcomputer-Based Interactive Learning System. Mitchell, E. (ed.), Nov 1978. 8 pp.

Discusses use of interactive learning systems used with freshmen and sophomores in electrical engineering.

7. ED 172 772 Instructions for Microcomputer Painting. Koran, C., Hicks, B. Mar 1979. 27 pp.

Written for beginners, explains how to use University of Illinois microcomputer system for painting.

8. 172 779 A Multi-Purpose Ed Medium -- MC Painting. Zibit, M., Hicks, B. Oct 1978. 22 pp.

Describes microcomputer (MC) painting. Explains how MC painting is done and what the computer does.

9. ED 174 217 Microcomputers in Library Automation. Mitre Corp. Dec 1978. 56 pp.

Introduction to technology of automated library. Includes list of vendors supplying automated library system. Contains excellent glossary.

10. ED 175 433 Microcomputer Applications in Interaction Analysis. Wadham, R. Apr 1979. 14 pp.

Conducted at BYU. Goal was to discover how the behavior of the effective teacher differed from that of the non- or less-effective teacher.

11. ED 178 054 A General Introduction to Microcomputers. Muiznieks, V. Nov 1978. 19 pp.

Includes terminology, definitions and concepts that explain the microcomputer and computing technology in general.

12. ED 178 095 MSEA -- The Department's Microcomputers. Illinois Series of Educational Applications of the Computer, Report no. 27. Muiznieks, V. Dec 1978. 31 pp.

This report provides a technical description and operating guidelines for the IMSAI 8080 microcomputer in the Dept. of Secondary Education at the U. of I. Assembler language use for the machine is also discussed.

13. ED 181 903 A department-wide Undergraduate Teaching Laboratory Using Microcomputers. Levy, M. Apr 1979. 10 pp.

Paper presented at the Annual Meeting of The American Psychological Association. Educational opportunities related to time, space, and money are discussed as factors affecting the using of microcomputers in the psychology teaching labs at the University of Florida.

14. ED 182 139 Proceedings: DISE Workshop on Microprocessors in Education. Aug 1976. 111 pp.

(Discovery in Science Education.) This article covers the papers presented during 4 sessions of a workshop which addressed the role of microprocessors in education. Issues covered included: 1) views of microelectronic industry; 2) microprocessor architecture; 3) chip design; 4) impact on curriculum (mostly aimed at engineering); 5) microprocessor laboratories; and 6) microcomputer systems applications.

15. ED 183 199 Documentation -- INFO: A Small Computer Data Base Management System for School Applications. The Illinois Series on Educational Applications of Computers, No. 24e, Cox, J. 1979. 109 pp.

Presents program documentation for a data based management system called INFO. Contains programs, sample uses, programmer's guide.

16. ED 183 201 MC Pointing Manual A: A User's Guide. Hicks, B., Zibit, M. Jul 1979. 16 pp.

This manual provides detailed instructions for using the tools and procedures of microcomputer painting medium developed at U. of I. (Graphics Writing Software). Use of Apple II and BASIC programming commands are covered. The program used is "H21" -- developed at U. of I.

17. ED 183 202 Common PILOT. Ill. Series on Educational Use of Computers, No. 34. Cox, J. Jul 1979. 36 pp.

Manual presenting an overview of PILOT computer language.

18. ED 184 900 Multiple Technologies in an Instructional Intervention Program To Assist in Teaching Pre-Calculus and Calculus Courses. Theall, M. Apr 1980. 80 pp.

Concerns the use of videotape in teaching calculus. An effectiveness study is performed. Also discussed is the interfacing of videotape and computers to supplement the teaching of calculus.

19. ED 186 248 Some Alternate Applications of Microprocessor Trainers in Support of Undergraduate Laboratories. COED Transactions, Vol. XI, No. 12. Mitchel, E. Dec 1979. 21 pp.

Discusses use of microcomputers in undergraduate tasks in demonstrations and experiments.

20. ED 188 285 Conducting Energy Audits of your Schools: Or the Last One Out of Town, Please Turn off the Lights. Tetzloff, R. Apr 1980. 44 pp.

Article concerned with plant management. The microcomputer is used to help gather information and reduce costs by controlling environments within the building.

21. ED 190 111 Teaching Statistical Concepts Using Microcomputer Simulations. Stockburger, D. Apr 1980. 32 pp.

Reviews five uses of computers in teaching statistical concepts to researchers. Presents a BASIC program to simulate a one-way ANOVA experiment.

22. ED 190 116 Courseware Development for Micro-Processor Based Instruction in Music. Peters, G. Feb 1979. 8 pp.

Contains an assessment of hardware and courseware available in 1978 for providing music instruction. PLATO V and Apple II were used. Discussion of graphics, peripherals, maintenance, and delivery of music instruction via microcomputers.

23. ED 190 128 Creativity through the Microcomputer. Bass, G. Jun 1980. 6 pp.

Describes in a very general way the use of the Apple II in teaching creativity: a tone generator is used to help create melodies.

24. ED 190 129 Educational Implications of Microelectronics and Microprocessors. Harris, N. (ed.). Sep 1979. 50 pp.

Extended discussion of British engineering and trade problems. Discusses challenges to the British and problems with education, especially engineering. Brief report of discussions on schools and curricula.

25. ED 191 666 A Low Cost Microcomputer Laboratory for Investigating Computer Architecture. COED Transactions, Vol 12, n. 2. Mitchell, E. Feb 1980. 7 pp.

Describes a microcomputer lab at West Point with 16 stations.

26. ED 191 731 Graphical Input for Coordinate, Perimeter and Area Measurement. COED Transactions, Vol XII, n. 6. Mitchell, E. Jun 1980. 24 pp.

Presents hardware configuration which measures positions, areas, lengths. Educational and research applications are discussed. (Computers in Education Division of the American Society for Engineering Education)

27. ED 192 144 Microelectronics at Work: Productivity and Jobs in the World Economy. Norman, C. Oct 1980. 64 pp.

A comprehensive discussion of past, present, and future related to microelectronics and the related impacts on employment and world economics.

28. ED 192 718 A Gateway to the Use of Computers in Education (AEDS Proceedings). Association for Educational Data Systems. Apr 1980. 227 pp.

Contains 45 refereed papers from an annual convention. A very wide range of topics. Many papers have bibliographies. A list of titles/authors is given on pages iv, v, and vi. All presentations relate to educational settings.

29. ED 192 763 Professional Development and Educational Technology. Proceedings of the National Conference (Washington, D.C.). Association for Educational Communications and Technology. Jan 1980. 154 pp.

This collection of papers presented at a 3 day Conference focuses on "the use of communications technology for educational/instructional purposes." There were 3 main areas of concentration at the conference: 1) issues in educational technology, 2) case studies, and 3) recommendations for the future.

30. ED 192 818 Guide to Microcomputers. Frederick, F. 1980. 159 pp.

This article is an extensive guide to microcomputers. Some areas included are education, hardware/software, accessories, languages, graphics, data bases, CAI and CMI. Also included is an extensive list of resources (journals, software companies, books, etc.) The guide is written in easy-to-read terms.

31. ED 194 047 Computer Based Instruction: A New Decade. Proceedings of the Annual Conference of the Association for the Development of Computer Based Instruction Systems. Apr 1980. 321 pp.

This article consists of 50 papers presented at the 1980 ADCIS conference. Some of the topics include: special interest groups -- handicapped; computer based training; computer based instruction in music, health, home economics; instruction in basic skills for microcomputers, and a PLATO users group. An author index is included and each paper includes a short abstract and a reference section.

32. ED 194 060 Proceedings of NECC/2 National Educational Computing Conference, 1980. Harris, D. Jun 1980. 306 pp.

Papers, projects and conference reports given at the National Educational Computing Conference are included in this document. A variety of topics are thoroughly discussed (see abstract and index for list). Many articles include lengthy reference sections. (Computer programs listed are in FORTRAN and Machine Language -- none in BASIC.) An author index is included.

33. ED 194 710 The Microcomputer as an Interactive Instruction System in the Classroom. Jelden, D. Jun 1980. 248 pp.

This article describes a 4-year research project conducted at the University of Northern Colorado. The study focuses on "the application, restriction, and feasibility of a micro-system as an interactive, tutorial, instructional tool in a self-contained classroom."

34. ED 195 288 Computer Based Education -- The Best of ERIC. Hall, K. Nov 1980. 96 pp.

This article is a detailed, annotated bibliography including research, projects, journal articles, conference reports and other documents -- all relating to Computer Based Education (covering 6/76 to 8/80). Topics include: 1) historical references, 2) new technology, 3) new audiences (handicapped, etc.), 4) curriculum and content areas, 5) new developments in teacher training programs, 6) research in CAI, and 7) conference proceedings.

35. ED 196 160 Computerized Purchasing. Mazurek, J. Oct 1980. 9 pp.

The article gives, in outline form, a brief explanation of computer systems, hardware, software, and how the computer works. The article deals with using computer in purchasing -- little reference is made to education, per se.

36. ED 196 409 Individualized Learning Using Microcomputer CAI. Hinton, J. Mar 1980. 26 pp.

Reviews CAI literature of 1978 and 1979 listed on ERIC.

37. ED 196 416 Microterminal/Microfiche, System for Computer Based Instruction. Kottensette, J. and others. Oct 1980. 83 pp.

Research sponsored by Air Force to investigate effects of microterminals/microfiche on learning behavior.

38. ED 196 431 School Microware: A Directory of Educational Software. Dresden Associates. Sep 1980. 52 pp.

A directory of software available from 45 suppliers. Summaries are organized by subject and grade level.

39. ED 196 455 Microcomputers in Education: Application of Microprocessors in the schools. Tinker, R., Naiman, A. May 1980. 100 pp.

Focuses on New England states, covers the instructional software available for most commonly used microprocessors. Includes resource listing of courseware.

40. ED 198 791 A Multi-Media CAI Terminal Based Upon a Microprocessor with Applications for the Handicapped. Brebner, A., and Hallworth, H. Apr 1980. 10 pp.

Explains reasons for hardware selection. Briefly explains the use of a microcomputer to teach social arithmetic (functional mathematics) to handicapped individuals.

41. ED 198 810 A Next Step: A Computer Facilities Master Plan for Saddleback College. Campbell, D. and others. Feb 1979. 35 pp.

A needs assessment for the college indicated they could complement their NCR 200 with microcomputers. The rationale for and implementation of the computing system is described.

42. ED 198 812 Microcomputers in Education. Anderson, C. Oct 1980. 13 pp.

Paper designed to answer questions about microcomputer hardware, software, and applications to education. Explains some terms and concepts, prices listed are 1980 and earlier.

43. ED 198 815 An Overview of MICRO-CMI. McIsaac, D. and others. Nov 1980. 23 pp.

The MICRO-CMI system was designed at the University of Wisconsin. This system is designed for micro online computers and not for personal computers. MICRO-CMI is an administrative software tool.

44. ED 198 875 The MBRCC Student Records System Works! Traicoff, G. and others. Dec 1980. 15 pp.

Report describes a software cooperative. Describes hardware and software that make up a record keeping system.

45. ED 200 187 Computer Assisted Instruction in Schools: Achievements, Present Developments, and Projections for the Future. Hallworth, J., and Brebner, Ann. Jun 1980. 243 pp.

Overview of CAI traces development and use of computers in learning and instruction. Describes current CAI projects, i.e., PLATO, TACCIT, and others. Examines cost, student attitudes, and hardware, software, courseware.

46. ED 200 188 Computer Assisted Instruction in Schools. Hallworth, H., and Brebner, A. Jun 1980. 12 pp.

Discusses trends and issues in CAI.

47. ED 200 194 Schools, Computers and Libraries: Selected Resources from Course Projects Developed by Students in L.S. 8064-90, Villanova University, Fall Term, 1980. Brickley, R. Jan 1981. 71 pp.

A resource booklet containing projects carried out or researched by students in a library science class. Several good bibliographies are listed.

48. ED 200 275 Desk Top Computers. Merchant, R. Jan 1981. 7 pp.

Description of a self directed course at Spokane Falls Community College in introduction to microcomputers using the TRS-80. The course emphasizes hands-on experience and is designed for business students.

49. ED 200 284 Microcomputer Tutorial Assistance Project. Kamm, S. 1981. 21 pp.

Project report summarizing the development of 50 tutorial packages for microcomputers to be used in university math and science departments.

50. ED 200 449 Early Adolescent Use of Selected Problem Solving Skills Using Microcomputers. Cox, D. 1980. 264 pp.

Ph.D. dissertation. Reports the results of two pilot studies and a research project conducted with 66 seventh and eighth graders. Two areas of emphasis: problem solving and data organization. Five BASIC programs were developed by a professional programmer: Energy at Home, Global Travelers, Try a Matrix, Data Retrieval, Vertebrate Pets.

51. ED 201 305 The Learner and the Computer. Ayers, G. Oct 1980. 9 pp.

Paper presented at the National Conference on Computer Based Education, Minnesota. Gives a brief description of the history and future trends of microcomputers in education, and an overview of learning styles of 4 groups (disadvantaged and underprepared, adult learners, handicapped, and youth) and how these learning styles can be used with computer assisted instruction.

52. ED 201 307 Exploring the Microcomputer Learning Environment. Loop, L., and Christensen, P. Nov 1980. 90 pp.

This article summarizes the current "state-of-the art" of the educational use of microcomputers, and discusses a develop a taxonomy to characterize computer-augmented learning of computer readiness. This research was based on a review of literature, observations, and interviews. A lengthy reference section is included.

53. ED 201 346 Discovery Learning in Trigonometry Using Microcomputers. Kelly, J. Oct 1980. 104 pp.

Software development funded by the Apple Educational Foundation. Six discovery learning units are presented which are to be used as supplemental work. Ninety pages of print material and sample program output are presented.

54. ED 201 410 Exploring with Computers in Viking Land. Association for Educational Data Systems, May 1981. 319 pp.

Reports a summary of conference. presentations. Sixty-six short papers were presented. Some of the topics covered were: 1) Data Base Management for a school system; 2) LOGO and Turtle graphics; 3) secretarial sciences; 4) PLATO; 5) Time sharing; 6) suggestions for the development of Computer Based Curricula; 7) Micro Sift to Microcomputer Educational Clearing House, Portland and Oregon; 8) Portability of graphics and courseware packages; 9) software evaluation; 10) educational data processing; and 11) comps/ and videodisks.

55. ED 201 754 Mini-computers and the Building Trades: A Guide for Teachers of Vocational Education. Asplen, D. and others. Aug 1980. 58 pp.

Training materials developed under the auspices of the Pennsylvania State Department of Education. Teacher training materials to help vocational education teachers introduce students to operation and installation of small computers in residential and business buildings. Especially for teachers of electricity, heating, and AC. Chapter one is devoted to awareness issues. Contains student worksheets. Extensive bibliography for vocational/technical users.

56. ED 202 452 A Technology Assessment of Personal Computers Vol I. Miller, J. 1980. 79 pp.

Analysis of growth of technology, impact of technology, and public policy implications in education, employment, and international trade.

57. ED 202 453 A Technology Assessment of Personal Computers. VOL II. Miller, J. 1980. 121 pp.

Discusses computer history and terminology, future trends, generic hardware.

58. ED 202 454 A Technology Assessment of Personal Computers Vol III. Miller, J. 1980. 342 pp.

Detailed technological forecast and implications for international trade and employment in America.

59. ED 202 461 Computer Assisted Learning in U. S. Secondary and Elementary Schools. Chambers, J., and Beck, A. Jul 1980. 50 pp.

Discusses major impediments to microcomputer usage. Good bibliography.

60. ED 202 472 Fourth Plato Summative Report on the Delaware PLATO Project. Hofstetter, F. Jul 1979. 135 pp.

Article explains how PLATO is successful in educating people with the use of various computer systems. A conference report is in the article's concluding remarks.

61. ED 202 476 Preschool Children Use Apple II to Test Reading Skills Program. Piestrup, A. Jan 1981. 13 pp.

Field test of Apple II equipment in Stanford's preschool. Describes teacher observations and student interactions with the system.

62. ED 202 487 Comprehensive Long-Range Program for Library Services in Wisconsin, 1980-1985. Wisc. State Department of Public Instruction. Sep/Oct 1980. 66 pp.

This is an issue of the Wisconsin Library Bulletin devoted to long range planning for library services. Discusses the use of computers and communications technology (2 pages in chapter II). Outlines objectives and the work of the Automation Study Committee.

63. ED 202 707 Calculators and Microcomputers for Exceptional Children. Etingers, L., and Ogletree, E. 1981. 9 pp.

Explains how calculators and microcomputers benefitted students by reinforcing basic skills, reinforcing problem solving ability, promoting logic thinking and creativity.

64. ED 203 849 An Update on Computers in the Classroom. Walker, R. 1980. 16 pp.

Gives a brief overview of the development and the utilization of microcomputers in education -- including literacy, special ed, the disadvantaged, and the visually and hearing impaired (physically and mentally handicapped).

65. ED 203 872 Using Microcomputers for Composition Instruction. Connell, B., and Humes, A. Mar 1981. 10 pp.

Describes the use of an Apple II and a word processor in English Composition class.

66. ED 203 910 Exploration of Career Information Delivery Systems via Computerization. Moore, R. and others. 1981. 40 pp.

The article gives a brief description of 5 computerized career information systems: COIN, CVIS, CECIL, DISCOVER, GIS, SIGL, and MICRC. Information is given on how and where each system was used (5 different colleges/universities).

67. ED 204 144 Computers in the Secondary Mathematics Curriculum. Copple, C. Jun 1981. 34 pp.

Briefly summarizes over forty publications related to microcomputers in secondary education. Topics included status, computer literacy, teaching computer science, and computer assisted instruction. Good bibliography.

68. ED 204 381 I Refinement: Alaska. Hazelton, A. and others. Apr 1981. 25 pp.

School district was equipped with microcomputers for use of DBMS. The district used the system to evaluate the Title I project and programs of Title I students.

69. ED 205 122 Integration of Voice, Data and Image as a Factor in Information Planning AIR Forum 1981 Paper. Sheehan, B. and McMinn, W. May 1981. 23 pp.

An analysis of changes in higher education caused by the technological advances in information processing systems. A framework is used which associates the technology, its application and the affected institution.

70. ED 205 145 Computer Assisted Instruction in Geology. Lepp, H. Jul 1981. 8 pp.

Multiple choice geology tests are administered on a college computer. These tests are used in addition to traditional class lecture, discussion, and laboratory work. The author describes the benefits of these computer self-tests as an excellent means of review, identification of subject matter, record keeping, and exposure to working on a computer.

71. ED 205 165 Issues Related to the Implementation of Computer Technology In Schools: A Cross-Sectional Study. Children's Electronic Laboratory Memo No. 1. Sheingold, K. Feb 1981. 19 pp.

This research was conducted in an attempt to determine the impact technology has on microcomputer innovations in schools. Case studies of 3 schools were conducted with information collected from students, teachers, administrators, and the community. In general, the study indicated that the impact of microcomputers "will depend primarily on the context within which they are embedded."

72. ED 205 169 Microcomputer Guide. Fors, G. Sep 1979. 51 pp.

A manual, designed for use by school systems introducing microcomputers into their curriculum.

73. ED 205 201 Instructional Software Selection: A Guide to Instructional Microcomputer Software. Microcomputers in Education Series. Douglas, S. and Neights, G. 33 pp.

This guide was developed as an aid in evaluating software. Included is a description of software, its uses, the various types, and implementation into the existing curriculum. A software evaluation form and criteria are included. A glossary and lists of user groups, organizations, and software libraries are included in the appendices.

74. ED 205 203 Microcomputer Reference: A Guide to Microcomputers. Microcomputers in Education Series. Shirley, D. and Neights, G. 1980. 37 pp.

An article describing the purchasing of hardware based upon needs assessment. A complete set of useful forms are included.

75. ED 205 206 The Effects of Learning a Computer Programming Language on the Logical Reasoning of School Children. Seidman, R. Apr 1981. 63 pp.

This research was conducted to determine the effects of learning computer programming language (LOGO) upon the learner's ability to reason logically. Fifth grade elementary students were randomly selected for the study, half receiving programming instruction in LOGO, the remaining students receiving no treatment. The researcher found the experimental group score significantly better on the inversion fallacy principle. A 64-item bibliography is included.

76. ED 205 214 Microcomputers in Alberta Schools. Final Report. Petruk, M. Feb 1981. 43 pp.

A study conducted in Alberta, Canada to assess the extent to which microcomputers have been introduced into schools.

77. ED 205 216 Microcomputers in Education: Getting Started. Conference Proceedings. Tempe, Arizona, Jan 16-17, 1981. 349 pp.

Brief write ups of 55 presentations given at the Microcomputers in Education Conference in Tempe, Arizona, Jan 16-17, 1981.

78. ED 205 238 GEM. Guided Exposure to Microcomputers. An Interactive Video Program. Anandam, K. and Kelly, D. Apr 1981. 12 pp.

The use of GEM is described as used by a Florida community college. The authors describe the type of equipment necessary and the steps involved to develop an interactive video program. Steps in designing a lesson are also discussed.

79. ED 205 478 Using Computers to Enhance Teaching and Improve Teacher Centers. A Report of the National Teachers Centers Computer Technology Conference. Sadowski, B. and Lovett, C. 1981. 94 pp.

This is a collection of papers presented at a conference for teacher center directors. The conference focused on the applications of computers in education. The papers here include areas such as the state of the art of computers, and the use of microcomputers in educational management, instruction, and CAI. A glossary of terms and a directory of educational computing resources are available.

80. ED 205 743 In Service Workshops on New and Emerging Agriculture/ Natural Resources Occupation Instructional Materials. Final Report, Jan. 1, 1980 - June 30, 1981. Leising, J. and Wilkins, R. 1981. 140 pp.

A document containing the final report of a project to develop resources that would better aid the use and implementation of microcomputers into the college agricultural education system.

81. ED 206 117 Public Support for Public Schools: The Past, The Future, and the Federal Role. Piele, P. Jul 1981. 54 pp.

Article discussing the future trends of support for Public Schools. A survey of salient indicators is used. One trend mentioned is the effect of microcomputers upon societal structure and the resultant effects upon schools.

82. ED 206 260 Future Applications of Electronic Technology to Education. Lewis, A. Nov 1978. 36 pp.

New developments in telecommunications and computer technology are discussed in regard to education. One development described is microcomputers and microprocessors. The author also discusses the use of electronic technology in instruction and the implications of electronic technology for aims and content of education.

83. ED 206 272 Programmable Calculators and Minicomputers in Agriculture. A Symposium Exploring Computerized Decision Making Aids and Their Extension to the Farm Level. Proceedings of a Symposium (Hot Springs, Arkansas, Feb 6-7 1980). Bentley, E. Apr 1980. 102 pp.

A group of 10 papers presented at the Symposium, covering a wide range of topics concerning the use and implementation of microcomputers in agriculture.

84. ED 206 304 Computer Supported Instruction in California Elementary and Secondary Schools. A Status Report. Stutzman, C. Apr 1981. 39 pp.

The author describes findings of a study conducted to determine the current uses of computers for instructional purposes, the anticipated uses, and the areas of preparation that schools of education must provide in order to meet current and anticipated needs in the schools. The study was conducted in June 1980.

85. ED 206 330 Evaluator's Guide for Microcomputer-Based Instructional Packages. Northwest Regional Educational Lab., Portland, Ore. 1981. 61 pp.

This guide was developed to assist educators in evaluating educational microcomputers, software and courseware. The guide includes evaluation forms for both courseware and software, which were originally used by MicroSIFT, a software clearinghouse. Four stages of the evaluation process are discussed.

86. ED 206 718 Better Use of Instructional Data Processing at an Intermediate Education Service Agency. Roecks, A. Apr 1981. 19 pp.

This study was conducted to determine ways in which data processing could be used more productively by a Texas Education Service Center. From interviews of intermediate school administrators, the researchers found that there was poor communication between schools and computer personnel and instructional staff needed to learn more about computers. Other findings are included.

87. ED 207 168 The Microcomputer and Management of the Time Bound Educational Program. Mosow, D. and Hewitt, T. 1980. 8 pp.

The authors describe the future uses of microcomputers in schools in the 1980's. A Teacher Corps project at the University of Alabama is described, demonstrating the use of microcomputers in instruction and management.

88. ED 207 486 Final Report of the Computer Assisted Learning Test Project. Report No. 19. Van der Drift, K. Mar 1981. 100 pp.

A final project report concerning a pilot study, completed to gain information for advising the Directors of the University of Leyden, Netherlands, as the best possible use and implementation of microcomputers in the curriculum.

89. ED 207 489 Toward a Grammar of Educational Television: Part II, Method. Becker, Ann De Vaney 12 pp.

A research report on use of a microcomputer to study dramatic presentations on educational television.

90. ED 207 526 Proceedings of the NECC 1981 National Educational Computing Conference. (3rd, North Texas State University, Denton, Texas, June 17-19, 1981). Jun 1981. 361 pp.

Included in this article are the papers presented at the NECC Conference. Topics include simulations, administration, computer literacy, project presentations, business, testing, graphics, humanities, health education, programming languages, science, and others.

91. ED 207 528 Trends in University Instructional Development. Bedient, D. Apr 1981. 10 pp.

A study was conducted of instructional development programs of 9 universities. Analyzing several trends, one of which is interest in microcomputers. A very brief section of the universities' interests is included.

92. ED 207 548 "Goals for the Eighties." Proceedings from the 1981 Spring Meeting of the Nebraska Library Association, College University Section. Kozak, K. Apr 1981. 79 pp.

This article includes 8 papers presented at the conference. One of this "... Applications of Microcomputers in Academic Libraries and Media Centers" discusses microcomputers. (Only a 1 page abstract of this article is included.)

93. ED 207 555 Optimization of Computerized Drills: An Instructional Approach. Siegel, M. and BiBello, L. Apr 1980. 39 pp.

The author describes a type of computerized drill program, Corrective Feedback Paradigm (CFP) and summarizes a research project using CFP with foreign language instruction of college students.

94. ED 207 598 The Use of Microcomputers for Training: Business and Industry. Kearsley, G. and others. Mar 1981. 10 pp.

The author discusses a survey of 56 major corporations concerning the use of microcomputers in training. The survey had five areas: training applications, hardware, software, courseware, and number of students involved.

95. ED 207 651 An APPLE A Day Will Keep the Text Away: Or Using Microcomputers in Elementary Algebra. Evans, B. 1981. 10 pp.

The author describes how an Apple microcomputer was used to teach elementary algebra to college students. Tutorial, drill and practice, and testing software were used. A video cassette recorder was also used with the microcomputer (this was controlled by the Apple).

96. ED 208 844 Implications of MECC for B.C. School Computer Development. Discussion Paper 11/79. JEM Project No. 05/80. Goddard, W. Jun 1980. 18 pp.

This paper has 3 purposes: 1) to briefly present the activities of MECC, 2) to describe how British Columbia might benefit from the MECC experience, and 3) to encourage discussion and reaction from educators.

97. ED 208 846 Microcomputers in the Schools: New Directions for British Columbia. Discussion Paper No. 05/80. Wright, A. May 1980. 42 pp.

The author describes how British Columbia began implementing microcomputers into the schools. The article describes selection of hardware, courseware evaluation, in-service teacher training, and curriculum implementation/ integration.

98. ED 208 847 Developing Standards and Norms for Computer Literacy. Discussion Paper 06/80. Wright, A. Jul 1980. 75 pp.

The author presents a general description of computer literacy. An in-depth discussion and review of the Minnesota Computer Literacy Awareness assessment is presented.

99. ED 208 849 Reference Manual for the Instructional Use of Microcomputers, Vol. I. (Release II) Forman, D. and others. 1981. 873 pp.

This manual provides extensive information for locating, purchasing, and selecting courseware for the Apple II microcomputer. The 7 sections include: 1) an annotated courseware index, 2) cataloque reproductions, 3) list of publishers/distributers, 4) courseware descriptors, 5) an annotated list of computer books, 6) an annotated list of computer books, 6) an annotated list of computer magazines and journals and 7) an annotated list of compatible expansion options and accessories.

100. ED 208 850 The Use of Microcomputers in a Communication Network. Underwood, B., (Ed.). May 1981. 77 pp.

This article describes the current state of microcomputer networking and recent developments in communication technology. The author also studied the communication possibilities between 2 microcomputers, a mainframe computer, a data base and a knowledge network.

101. ED 208 860 Personal Experiences: Using Microcomputers in a Jr. High School High-Potential Program. Vickery, C. Apr 1981. 29 pp.

A junior high school teacher describes her involvement with microcomputers in her classroom. Also described is the school districts' process of purchasing the microcomputers, teacher training, and how the microcomputer is used in and English class.

102. ED 208 864 Information Technology in Education: Perspectives and Potentials. Report Prepared for the Subcommittee on Science, Research and Technology of the Committee on Science and Technology U.S. House of Representatives, 96th Congress, Second Session. Dec 1980. 348 pp.

The report gives a detailed view of the role of information technology in education. The report gives an overview of the hearings of the ninety-sixth congress.

103. ED 208 868 Computer Literacy for Elementary and Secondary Teachers. Beck, J. Nov 1980. 17 pp.

The author discusses the impact of technology on society. The author explains the need for educators to become computer literate and discusses goals and implications of computer literacy.

104. ED 208 869 Computers for Everybody. Willis, J. and Miller, M. 1981. 171 pp.

A book giving generic uses of microcomputers. A consumer and user's guide is also presented.

105. ED 208 876 Green Globs: A Microcomputer Application for Graphing of Equations. Dugdale, S. Aug 1981. 22 pp.

The author describes a highly motivating computer game designed to teach students about graphing mathematical equations. A detailed explanation of the game is provided.

106. ED 208 877 Integrating Testing and Instruction Using the Videodisc. Hiscox, M. Aug 1981. 12 pp.

The author describes how computers, microcomputers and videodiscs can be used to integrating testing and instruction. He explains how computers can be used to create item pools, individualize tests, score problems, prescribe, and maintain records.

107. ED 208 891 Home Information Systems: A Primer. Moore, R. Jul 1981. 38 pp.

Discusses current systems and projects trends of interactive video systems for in-home information in fields such as merchandising, public opinion polling, and tutorials. Extensive bibliography.

108. ED 208 901 Microcomputers in Education: Report No. 4798. Feurzeig, W. and others. Oct 1981. 115 pp.

A history/state-of-the art/future report on CAI and software prepared for HEW, NIE, and the Venezualan Ministry for the Development of Human Intelligence.

109. ED 208 946 A Survey of Selected Computer-Related Periodicals. Michelsen, J. 1981. 9 pp.

This article presents an annotated bibliography of over 60 computer-related periodicals.

110. ED 209 076 Curriculum Reports, 1981 for SE 5050, Florida Institute of Technology. Richmond, R. and others. 1981. 133 pp.

Included are student papers presented in partial fulfillment of a science course. One paper deals with microcomputers, "Microcomputers for Individualizing Instruction in the Science Classroom."

111. ED 209 749 Drama and Routine in the Public Schools. Pondy, L. and Huff, A. 1981. 42 pp.

This document is a case study of how a Chicago school district implemented microcomputers in the classroom. The authors studied how this curricular change was made without upheaval or drama and compares this method of change to another which stresses uncertainty and drama of change.

112. ED 209 889 Computer Connections for Gifted Children and Youth. Nazzaro, J. (Ed.). 1981. 87 pp.

This document is a collection of articles written by computer specialists, teachers, parents, and students. All articles emphasize the role computers play in the development of thinking, problem solving, and creativity in gifted and talented students. A resource section is included.

113. ED 210 034 Study of Issues Related to Implementation of Computer Technology In Schools, Final Report. Sheingold, K. and others. Jul 1981. 141 pp.

This is a report of a study conducted to discover and identify ways in which microcomputers are being used in schools. The survey involves case studies of several school districts. The report describes positive and negative aspects of the implementation of microcomputers in the schools.

114. ED 210 156 Microcomputer Applications in Analytical Chemistry. Long, J. 1981. 20 pp.

The author briefly discusses the usefulness of microcomputers, applications for microcomputers in analytic chemistry, costs, major microcomputer systems, and which microcomputers to buy. The remainder of the article includes a detailed discussion of 3 applications of microcomputers in analytic chemistry courses at the community college level.

115. ED 210 180 A Plan for Mathematics Curriculum with a Focus on Problem Solving for Elementary Grades K-5. Connor, T. and others. 1981. 208 pp.

This article presents a plan for K-5 math curriculum which focuses on skills other than computational skills of a traditional math curriculum. One of these skills is computer literacy. Presented is a detailed plan for presentation of each of the basic skills at each grade level.

116. ED 210 491 Managerial Skills in Vocational Education Curriculum Development Project. Final Report. Clayton, D. and Park, O. Nov 1981. 97 pp.

A final report of a research project designed to develop, field test and disseminate a curriculum guide for vocational education teachers. Included are results of a survey of business owners/managers which indicates skills which they felt necessary in the curriculum. Microcomputers/data processing was one such skill.

117. ED 210 492 Arkansas Junior Executive Training Curriculum Guide. Clayton, D. and others. 1981. 187 pp.

This is a curriculum guide designed to help teachers conduct courses on small business management. Data processing and microcomputer training are included in one of the 19 units entitled "The Entrepeneur and the Computer." Objectives, references, films, magazines, and brochures are included for each unit.

118. ED 210 503 Microcomputer Operations. Energy Technology Series. Dec 1981. 259 pp.

A course in microcomputer operations developed for an Energy Conservation-and-Use Technology Series, aimed at industry and adult ed. technical institutions. Areas of the course include computer codes, computer architecture, microcomputer applications, disk-based operating systems, energy applications of microcomputers, and BASIC programming.

119. ED 210 504 Microcomputer Hardware. Energy Technology Series. Dec 1980. 216 pp.

A course in microcomputer hardware developed for an Energy Conservation-and-Use Technology Series, aimed at adult ed. technical institutions and industry. Areas of the course include Digital Components, Semi-Conductor Logic Families, Input/Output Devices and Techniques, Analog/Digital Conversion, Data Communications, Bus Systems, and Troubleshoot Microcomputer Components.

120. ED 210 793 The Computer Revolution and Its Impact on Education. Willis, Bernice H., Ed. 68 pp.

Twelve papers by vendors, consortia, national and state computer service networks, activities in Minnesota and Florida, and uses in educational settings. Part of a larger document.

121. ED 210 896 Computerized Aids for the Handicapped. Flanniqan, D. Sep 1981. 21 pp.

Described are computerized aids for the blind, hearing impaired, and speech impaired. A section on employment and education of the handicapped is included. A lengthy reference section is also included.

122. ED 210 995 Microcomputers in Higher Education. McLean, R. and McLean R. (Eds.). Oct 1981. 25 pp.

A collection of articles, book reviews, and bibliographies concerning microcomputers in higher education. Some topics are: CMI, CAI, Computer Literacy, and art and computers.

123. ED 211 020 Modeling with Microcomputers. Litaker, R. Oct 1981. 6 pp.

Explains how the microcomputer can be used by educational institutions to estimate future enrollments, forecast revenues, and project demands for specific programs.

124. ED 211 039 Instructional Use of Microcomputers: A Report on B.C.'s Pilot Project. Discussion Paper 03/81. Forman, D. Sep 1981. 124 pp.

A description of a 3-phase study conducted in British Columbia schools. The 3 phases included: 1) a microcomputer (Apple II) was selected for use and inservice training was conducted. 2) Development and integration of courseware into the curriculum. An evaluation form and catalog of Apple software was developed and guidelines were developed. 3) a survey of teachers was conducted. An extensive bibliography is included.

125. ED 211 046 Word Processing for Technical Writers and Teachers. Mullins, C. and West, T. May 1981. 10 pp.

A description of the word processing system available to faculty, staff, students and administrators at Indiana University.

126. ED 211 048 Evaluation of Electronic Counter-Countermeasures Training Using Microcomputer-Based Technology: Phase I. Gardner, S. and Ellis, B. Oct 1981. 23 pp.

Microcomputers were used to provide simulation training, drill and practice and testing in a Navy fleet combat training center.

127. ED 211 050 Instructional Technology for Special Needs. Discussion Paper 02/81. Wright, A. Jul 1981. 64 pp.

This paper reviews research projects which deal with education of the handicapped, disadvantaged and gifted, and technologies applicable for special education.

128. ED 211 058 Computers and Media Centers: Services, Satisfaction, and Cost Effectiveness. Givens, P. Jun 1981. 70 pp.

The results of a survey of media centers are presented. The survey was used to determine how microcomputers are being used in media centers, if they are cost effective, and to determine the level of satisfaction with their present uses. The results indicated that microcomputers are used primarily for cataloging and reference searches. 82% of those surveyed were satisfied with the computer services. Cost effectiveness could not be determined.

129. ED 211 062 A Standard's Guide for the Authoring of Instructional Software. Reference Manual Vol. III. Crawford, S. 1981. 145 pp.

This reference manual gives instructions for authoring CAI programs. Also included is advice on planning, designing, coding, documenting, and evaluating courseware. A lengthy reference section is included.

130. ED 211 066 The TRS-80 Microcomputer Network as the Foundation of a Computer-Based Instructional Laboratory. Ward, L. and Steiger, J. Jun 1981. 13 pp.

This article describes the use of the TRS-80 in a psychology lab at the University of British Columbia. The microcomputers are used for data collection, instruction, research, and a computer literacy course.

131. ED 211 071 Use of a Microcomputer in the Teaching of High School Mathematics. Bohrer, J. Aug 1981. 70 pp.

This is a report of a master's degree project which was designed to teach trigonometry. The author found the tutorial programs to be effective but written materials to accompany the program would be necessary.

132. ED 211 073 How to Run a Computer and Keep Up With It. A Co-Ser Project. Newton, J. and others. 1981. 124 pp.

Included in this artilce are curriculum materials designed to teach simple BASIC programming, and other areas of a computer literacy course. The materials are designed for teachers of grades 9 through 12, and are designed for use on the Apple, HP-2000, PET, and TRS-80.

133. ED 211 117 Microcomputer Directory: Applications in Educational Settings. Compiled by staff of Monroe G. Gutman Library. 1981. 60 pp.

A directory of schools throughout the United States who have microcomputer programs (both individual schools and statewide programs).

134. ED 211 345 Personal Computers and Cross Aged Instruction; First Year Report. Swadener, M. Nov 1981. 111 pp.

This describes a research project using microcomputers and cross aged instruction. The project was designed to 1) increase basic math skills in low-achieving 6th grade students, 2) increase enrollment in high school math and science, 3) evaluate microcomputers as instructional tools, and 4) develop effective applications of microcomputers in education.

135. ED 211 363 1981 Ohio Regional Conferences on Mathematics Education: Microcomputers in Education. Pikaart, L. and others. 1981. 157 pp.

Six conferences were held to provide educators with a state of the art review of microcomputers in education. This article contains primarily materials presented at these conferences.

136. ED 212 291 Microcomputers in Public Schools: Albany, Schenectady and Saratoga Counties of New York State. Terzian, P. Dec 1981. 9 pp.

Results of a survey of 3 New York counties are presented. The survey was to determine the extent of microcomputer utilization, and the attitudes of those using them. Grades K-12 were included.

137. ED 212 480 Applications of the Microcomputer to Existing Mathematics Courses. Bishop, T. Oct 1981. 6 pp.

The author discusses the uses of microcomputers in school mathematics programs. Included are discussions of types of software and their sources and the microcomputers as an alternative time-sharing.

138. ED 212 502 ERIC Clearinghouse for Science, Mathematics, and Environmental Education, Mathematics Education Fact Sheets, Nos. 1, 2, 3, 4. 1981 Kirschner, V. and others. 1981. 11 pp.

Four fact sheets are presented. The fourth, "Microcomputers and Mathematics Instruction," deals with general microcomputer awareness, literacy issues, curriculum considerations, research, and selecting relevant hardware and software. A bibliography is included.

139. ED 213 182 Personal Computers for the Physically Disabled: A Resource Guide. Apple Computer, Inc. 1981. 16 pp.

This resource guide describes how computers can be used with the motor and speech impaired, and the hearing impaired. The guide includes information on communication, education, and games which enhance motor and social skills.

140. ED 213 218 Teaching Handicapped Students Mathematics: A Resource Handbook for K-12 Teachers. Brockmann, E. 1981. 64 pp.

A resource guide intended for teachers of mainstreamed students. Part I contains papers on instructional techniques and problem solving. Part II contains articles in mathematical tools for independent living. No articles in Part I involve microcomputers. In Part II, only one article, "Reverse Mainstreaming with Microcomputers," includes information on microcomputers. This article discusses the idea of having non-handicapped students come into the special education classroom to use the microcomputer.

141. ED 213 327 New Technologies for Higher Education. 1981 American Association for Higher Education. Current Issues in Higher Education No. 5. 1981. 22 pp.

Included is a collection of papers presented at the Annual National Conference of the American Association for Higher Education. There are 5 areas: "What makes a Telecourse?", "Curriculum Issues in Telecommunications," "Administrative Issues in Telecommunications," and "Adapting to the Computer Revolution."

142. ED 213 389 School Microware Reviews. Evaluations of Educational Software for Apple, PET, TRS-80, with Index to Evaluations in Other Publications. Dresden Associates, Dresden, Maine. Sum 1981. 69 pp.

Instructional software for the Apple II, PET, and TRS-80 is reviewed. An index is included which lists other reviews recently published in several magazines and journals. The User Software Review Program is also described.

143. ED 213 391 Developing Resource Support for Educators Using Microcomputers. Martinez, C. Jul 1981. 19 pp.

This article describes a professional information center (PIC) located in Denver, Co. PIC serves as a clearinghouse for Denver schools, disseminating information on and reviews of computer software.

144. ED 213 393 Microcomputers in Today's Schools: An Administrators' Handbook. Northwest Regional Educational Lab., Portland, Ore. Nov 1981. 258 pp.

This handbook is designed for administrators who are implementing microcomputers into their school systems. Included are journal articles, reports and documents to provide administrators with current information on microcomputers in public schools.

145. ED 213 396 Computers Don't Byte. A Starting Point for Teachers Using Computers. A Resource Booklet. Lieberman, M. and others. 1981. 82 pp.

This resource booklet is designed for teachers who have no prior computer experience. It includes the areas of educational applications and professional issues (teaching styles, copyright, sexism, etc.) Also included is information concerning computers -- history, languages, and buying tips. An extensive resource section and glossary is also included.

146. ED 213 400 Teaching Computer Literacy in an Elementary School: A Comparison of Two Methods Using Microcomputers. Report No. 81:18. Nordman, R. and Parker, J. Sep 1981. 165 pp.

Compares two methods of instruction of BASIC programming for grades 3 through 7. One method allowed students to use the microcomputers as much as necessary. The second method used worksheets and take home assignments as the primary method of instruction. All materials (worksheets, etc.) used in the study are included.

147. ED 213 675 Technology in the Classroom: Initiative or Response? New Directions in Curriculum Development. Damarin, S. Feb 1982. 6 pp.

The author discusses 3 questions regarding the impact of computers on school curriculum: 1) How should computers and technology affect the content of the curriculum and instruction? 2) How should the availability of computers affect the quality of curriculum and instruction? 3) What are the implications for teacher education?

148. ED 214 446 Computer Literacy in Higher Education. AAHE-ERIC/Higher Education Research Report No. 6., 1981. Masat, F. 1981. 63 pp.

This report discusses five topics: computer literacy in higher education, the use and impact of computers in education, academic considerations, and administrative concerns.

149. ED 214 501 Using Microcomputers for Cognitive Rehabilitation. Gianutsos, R. Aug 1981. 11 pp.

Describes how a computer was used in a hospital setting for diagnosis and therapeutic exercises associated with cognitive therapy.

150. ED 214 540 The Use of Small Computers in ARL Libraries. SPEC Kit #77. Assoc. of Research Libraries. Sep 1981. 120 pp.

A collection of materials on small computers in research libraries. Information includes: the Spring 1981 SPEC survey of computer uses in ARL libraries, a bibliography, and papers on local applications of microcomputers in ARL libraries and commercial applications of microcomputers.

151. ED 214 606 Mastery Learning Conference (2nd, Chicago, Ill. May 27-29 1981) Summary. Shabat, O. and others. 1981. 72 pp.

Paper presented at the Chicago Mastery Learning Conference discussing microcomputers' role and use in mastery learning.

152. ED 214 608 Choosing a Microcomputer for Use as a Teaching Aid. Visniesky, C. and Hocking, J. Apr 1982. 8 pp.

A step by step guide to the purchasing of microcomputers for educational reasons.

153. ED 214 610 Computer Literacy: The New Mandate for General Education in the 80's. Poole, L. and others. Mar 1982. 12 pp.

Article discussing the use of microcomputers in higher education. Specifically aimed at General Education.

154. ED 215 302 Development and Use of Microcomputer Reading Programs. Henney, M. Mar 1982. 7 pp.

Article dealing with the use of microcomputers in a reading program for teaching skills such as: comprehension and paraphrasing. The program was developed at the University of Iowa and uses a team approach.

155. ED 215 348 And It (Shall) May Come to Pass: Speculations on the Future of English Education. Farrell, E. Apr 1982. 12 pp.

Article discussing countervaling forces such as conservatism and censorship that will affect the future use of microcomputers in education.

156. ED 215 478 High School Programs for Students With Special Needs. Meyer, L. Win 1980. 29 pp.

This group of articles contain one entry dealing with the use of microcomputers for administrative purposes in a special education program.

157. ED 215 617 Creative Responses to Changing Realities: A Conference for Northwest Postsecondary and Higher Education (Portland, Oregon, Nov 3-5, 1981). Nov 1981. 53 pp.

The proceedings of the Creative Response Conference held in 1981. One topic is microcomputers in Education.

158. ED 215 665 User Perspectives: Vermonters Talk About a Telecommunications Demonstration. Paper P-118. Chupack, S. and others. Jul 1981. 41 pp.

A collection of papers dealing with the topic of telecommunications and computer-linked telecommunications and their uses by special populations: Developmentally disabled individuals and cerebral palsy victims.

159. ED 215 859 Calculators, Computers and Classrooms. Higgins, J. and Kirschner, V. Dec 1981. 196 pp.

A collection of 36 articles addressing the use of calculators and computers in education.

160. ED 215 884 Using Calculators and Microcomputers With Exceptional Children. Etlinger, L. and Ogletree, E. 1982. 17 pp.

This article presents a general discussion of the use of microcomputers and calculators with special students.

161. ED 215 888 Computer Storytelling Mathematics for Pueblo Indians Upper Elementary Level Students: Final Report. Hakes, J. Sep 1981. 23 pp.

Article describing a program used for teaching math and science to elementary aged Pueblo Indians.

162. ED 216 179 Introduction to Word Processing. Units of Instruction. Teacher's Guide. Vocational Office of Education First edition. Burrow, E. 1982. 329 pp.

Teacher's guide book containing 9 units of instruction for teaching the use and skills of word processing.

163. ED 216 451 Microcomputers in Schools: Promise and Practice. Kelsh, B. and Lindelow, J. Apr 1982. 31 pp.

Article discussing the problems and considerations of the evaluation of computer courses being taught in the Middle and Secondary schools in Oregon.

164. ED 216 500 Information Prosthetics for the Handicapped. Final Report. Papert, S. Jan 1981. 39 pp.

The successful use of LOGO System in an educational setting with a population of 12 severely handicapped adolescents is described.

165. ED 216 546 The Foreign Language Teacher: The Lifelong Learner. Northeast Conference on the Teaching of Foreign Languages (29th, New York, NY, April 1-4, 1982). Mead, R. Apr 1982. 158 pp.

A conference report covering the proceedings of the 1982 Northeast Conference on the Teaching of Foreign Languages. One section focuses on the use of microcomputers and other educational technology.

166. ED 216 671 Microsift News. Oct 1980, Oct 1981. Marler, J. 1981. 31 pp.

Document comprising the first two issues of the Microsift Newsletter.

167. ED 216 679 Computer Literacy for All High School Students. Patton, R. May 1981. 26 pp.

Description of a two-week course offered in a Wisconsin secondary school is presented. Curriculum materials are also presented.

168. ED 216 704 Evaluating Instructional Software for the Microcomputer. Cohen, V. Mar 1982. 96 pp.

Criteria were developed and a software evaluation instrument developed at Columbia University. Reliability data are provided. Summarizes global statements about several software packages evaluated.

169. ED 216 863 Measurement and Analysis of Logical Thinking. Final Technical Report. DeLuca, F. Mar 1980. 20 pp.

Article discusses the use of a microcomputer to measure and study logical thinking. Piagetian tasks are programmed for that purpose. Strengths and weaknesses of the system are discussed.

170. ED 216 877 Minicomputers in the Teaching Laboratory-An Example from Physics. Farr, J. and VanDenBerg, W. 1982. 7 pp.

Article discusses some problems and solutions to using a microcomputer in the physics lab. The process of adapting a microcomputer for use as a measuring device of continuous phenomena is presented.

171. ED 216 893 Program and Abstracts. Vol 2. Society for College Science Teachers. NSTA Convention (Chicago, Illinois, April 1-5, 1982). Society for College Science Teachers. Apr 1982. 56 pp.

Abstracts of papers presented at the Annual Meeting of the Society for College Science Teachers are presented.

172. ED 216 898 Lesson Plans for Computer Literacy Unit (3 weeks). Grades 7-9. Revised. Joseph, H. Mar 1982. 50 pp.

Lesson plan for a three-week computer literacy unit is presented.

173. ED 217 513 Communications and the Future: Prospects, Promises, and Problems. Didsburg, Howard F., Jr., Ed. 357 pp.

A collection of 45 papers related to the telecommunications revolution.

174. ED 217 677 Colorado Technology Workshop. Technology and Service Delivery. Implementation Training for Colorado-PAACO-01-03. Latham, G. and Bahen, D. Feb 1982. 31 pp.

The proceedings from a two-day conference on the use of technology and the education of handicapped students are presented.

175. ED 217 829 Chemeketa Community College Developmental Education Enrollment Record Keeping System. May 1981. 36 pp.

Manual and description of the Enrollment Record Keeping Software package are presented.

176. ED 217 836 Networking at the Intermediate Agency Service Level: Utilization of SPIN & SPIF in School Districts. Inserra, A. Mar 1982. 14 pp.

An article describing the development and use of a bibliographic retrieval system developed for New York State.

177. ED 217 846 CAI and Computer Facilities for the Use of Patrons in a New Concordia Library Building: Report of the Programmed Learning Committee. Tallou, J. Sep 1981. 20 pp.

A description of the Programmed Learning Facility of Concordia University, Canada is presented. Environment and uses of the facility are covered.

178. ED 217 854 Aids to Media Selection for Students and Teachers. Simmons, B. and Carter, Y. Mar 1982. 136 pp.

A review of software available commercially for CAI is presented.

179. ED 217 871 The Microcomputer as Tachistoscope: Trials and Tribulations of Timing on the TRS-80. Mapou, R.L. 1982. 14 pp.

The hardware and software needed to use a TRS-80 microcomputer as a tachistoscope are discussed.

180. ED 217 872 Microcomputers in the Classroom: Dreams and Realities. Report No. 319. Becker, H.J. Jan 1982. 80 pp.

An article discussing the realities of computers in the classrooms. Questions are raised concerning the educational expectations of CAI. A pilot study, introducing computers into a typical classroom, is presented.

181. ED 217 878 Graduate Studies in Computer-Based Education at Ontario Institute for Studies in Education. Rubincam, I. Mar 1982. 18 pp.

An overview of the computer-based educational program instituted at the Ontario Institute for Studies in Education. A list of course offerings is provided.

182. ED 217 884 The Videodisc and Implications for Interactivity. Allard, K.E. Mar 1982. 11 pp.

Paper discussing the use of videodiscs and microcomputers to produce an interactive instructional setting.

183. ED 217 885 Alternative Media Storage/Retrieval Systems: A Futuristic Forecast for Educational Technologist. Bauterbaugh, J. Nov 1980. 36 pp.

Article discussing the present status of videodisc technology and future trends. Microcomputers and videodiscs are also discussed.

184. ED 217 890 Educational Telecommunications for Alaska. Vol I. Executive Summary. Alaska State Dept. of Education. Apr 1982. 47 pp.

Executive report discussing the educational needs in rural Alaska and the development of telecommunications as a means of meeting those needs. Areas discussed are: electronic mail, implementation of database for schools' use, and description of individualized study by telecommunications.

185. ED 217 891 Educational Telecommunications for Alaska. Vol II. Administrative Communications Network. Alaska State Dept. of Education. Apr 1982. 153 pp.

A report discussing the development of an electronic mailing system (EMS) for administrative use in the State of Alaska.

186. ED 217 893 Educational Telecommunications for Alaska, Vol IV, Individualized Study by Telecommunications. Alaska State Dept. of Education. Apr 1982. 197 pp.

Report discussing a micro-computer based system developed by the Educational Telecommunications for Alaska project to provide a set of core courses for rural high school students in Alaska.

187. ED 217 911 The Agenda for Strategic Planning in Social Institutions Such as Government, Post Secondary Education and Corporations: An Element of the Accreditation Self-Study at College of the Mainland. Vaughan, J.L. Jul 1982. 57 pp.

Paper discussing the method of strategic planning. One component is the social and technologically driven patterns.

188. ED 218 039 Computer-Assisted Audiovisual Training Methods for Rural Staff Development Programs. McNeece, C. Jul 1981. 10 pp.

Review considers the ways that microcomputers, in the area of CAI & CMI can be used to provide staff in rural areas with adequate training.

189. ED 218 247 The Meaning of Educational Change. Fullan, M. 1982. 326 pp.

Discusses microcomputers as one of many changes occurring in elementary and seondary schools.

190. ED 218 283 Trend Analysis Using Microcomputers. Berger, C.F. Apr 1981. 59 pp.

Article presenting the use of statistical analysis package for the Apple II.

191. ED 218 593 The Effects of Two Levels of Microcomputer Graphics on Reading Comprehension. Edybrum, D.L. 1982. 52 pp.

Report examining the difference between two different methods of presenting reading material to 7th grade students. TRS-80 color computer was used.

192. ED 218 703 The First Step in Utilizing Computers in Education: Preparing Computer Literate Teachers. Wells, M. and Bitter, G. Apr 1982. 13 pp.

A program developed by Arizona State University to assist districts in computer instructional program development.

193. ED 218 704 Survey of Arizona Public School Practices and Needs for Computer Assisted Instruction. Bitter, G. May 1980. 18 pp.

Report of needs assessment survey.

194. ED 218 705 Microcomputers and Problem Solving. Bitter, G. Jul 1981. 18 pp.

Article dealing with the forces affecting the acceptance of computers in education. Teacher pre-service education is discussed in length with examples of Computer Awareness Curriculum presented. Special interest paid to topic on microcomputers and their use in problem solving.

195. ED 218 706 Microcomputers Go to School. Bitter, G. 1981. 11 pp.

A short article, dealing generally with the issues of microcomputers in school; their uses, strengths and weaknesses. Also mentioned are a needs assessment, microcomputer laboratory teacher's conference, and other elated classes taught by the College of Education, Arizona State University.

196. ED 218 991 Problems and Perspectives for Institutional Research in the 1980's. Proceedings of the Annual Conference of the Southern Association for Institutional Research (Louisville, KY, October 29-31, 1980). Jones, L. 1981. 114 pp.

A group of abstracts of conference presentations. Two articles deal with the usefulness of microcomputers to the researcher.

197. ED 218 992 The Practice of Institutional Research. Proceedings of a Joint Conference of the Southern Association for Institutional Research and the North Carolina Association for Institutional Research (Charlotte, North Carolina, October 29-30, 1981). Martin, M. and Staman, E. Oct 1981. 102 pp.

Annual Conference Proceeding: One presentation considers ways to use a commercially prepared software package for modeling of research situations.

198. ED 219 115 Community College Journal for Research and Planning. Volume 2, Number 1. Carter, E. Spr 1982. 67 pp.

The microcomputer is examined as an aid to the institutional researcher.

199. ED 219 228 Physics Lab Experiments and Correlated Computer Aids. Teacher Edition. Gottlieb, H. 224 pp.

A laboratory manual containing 49 physics experiments. Specially written microcomputer software available to accompany the text.